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FEM 1.209: 170414, 170415, 170417, 170418, 170420, 170421, 170413

FLOOD INSURANCE STUDY

LEE COUNTY, ILLINOIS AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
AMBOY, CITY OF	170414
ASHTON, VILLAGE OF	170415
DIXON, CITY OF	170417
NELSON, VILLAGE OF	170418
STEWARD, VILLAGE OF	170420
SUBLETTE, VILLAGE OF	170421
UNINCORPORATED AREAS	170413

APRIL 15, 1988

Federal Emergency Management Agency

COMPLETED

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

This publication incorporates revisions to the original Flood Insurance Study. These revisions are presented in Section 9.0.

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FLOOD INSURANCE STUDY

LEE COUNTY, ILLINOIS
AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the geographic area of Lee County, Illinois, including the Cities of Amboy and Dixon, the Villages of Ashton, Nelson, Steward, and Sublette, and the Unincorporated Areas of Lee County (hereinafter referred to as Lee County), and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the state (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were performed by the U.S. Army Corps of Engineers (COE), Rock Island District (the Study Contractor) for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-E-83-1153, Project Order No. 1. This study was completed in August 1985.

1.3 Coordination

Streams requiring detailed and approximate study were identified during several meetings attended by FEMA personnel, the Study Contractor, and representatives of Lee County and the Village of Nelson.

On May 20, 1987, the results of this Flood Insurance Study were reviewed and accepted at a final coordination meeting attended by representatives of the Study Contractor, FEMA, and the community.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the geographic areas of Lee County, Illinois. The area of study is shown on the Vicinity Map (Figure 1).

Flooding caused by overflow of the Rock River, the Green River, Nelson Creek, Plum Creek, Fargo Creek, West Branch Fargo Creek, Steward Creek, and West Tributary was studied in detail within Lee County.

Approximate analyses were used to study those areas having a low development potential or minimal flood hazards.

Flooding caused by overflow of Beach Creek, Chamberlain Creek, Franklin Creek, Howland Creek, Perry Creek, Reid Creek, Sugar Creek, and Willow Creek was studied by approximate methods.

The areas studied were selected with priority given to all known flood hazard areas and areas of projected development or proposed construction through August 1990. The scope and methods of study were proposed to and agreed upon by FEMA and Lee County.

2.2 Community Description

Lee County is located in north-central Illinois. It is bordered by Whiteside County on the west, Ogle County on the north, De Kalb County on the east, La Salle County on the southeast, and Bureau County on the south. The 1980 population was reported to be 36,328, with the major portion of that population located in the Cities of Dixon and Amboy (Reference 1).

The soils in Lee County are of the following three general types: glacial drift deposited by advancing or retreating glaciers; alluvial or water-deposited soils; and post glacial deposits of loess or windblown soils. The bedrock in the county occurs at a depth of 0 to 600 feet from the surface. The main difference between soils in the county is their drainage ability, which ranges from poor to good (Reference 2).

The climate of the county is characterized by cold winters and warm, humid summers. In the winter, the average temperature is 23 degrees Fahrenheit (^{o}F), and the average daily minimum temperature is 14^{o}F. In summer, the average temperature is 71oF, and the average daily maximum temperature is 82^{o}F. The total annual precipitation is 34 inches and the average seasonal snowfall is 33 inches. Of this precipitation, 22 inches, or 65 percent, usually fall in April through September, which includes the growing season for most crops (Reference 3).

2.3 Principal Flood Problems

Stream gaging records have been maintained on the Rock River at Como, Illinois, in Whiteside County, by the U.S. Geological Survey (USGS). Records are available from 1915 until 1983.

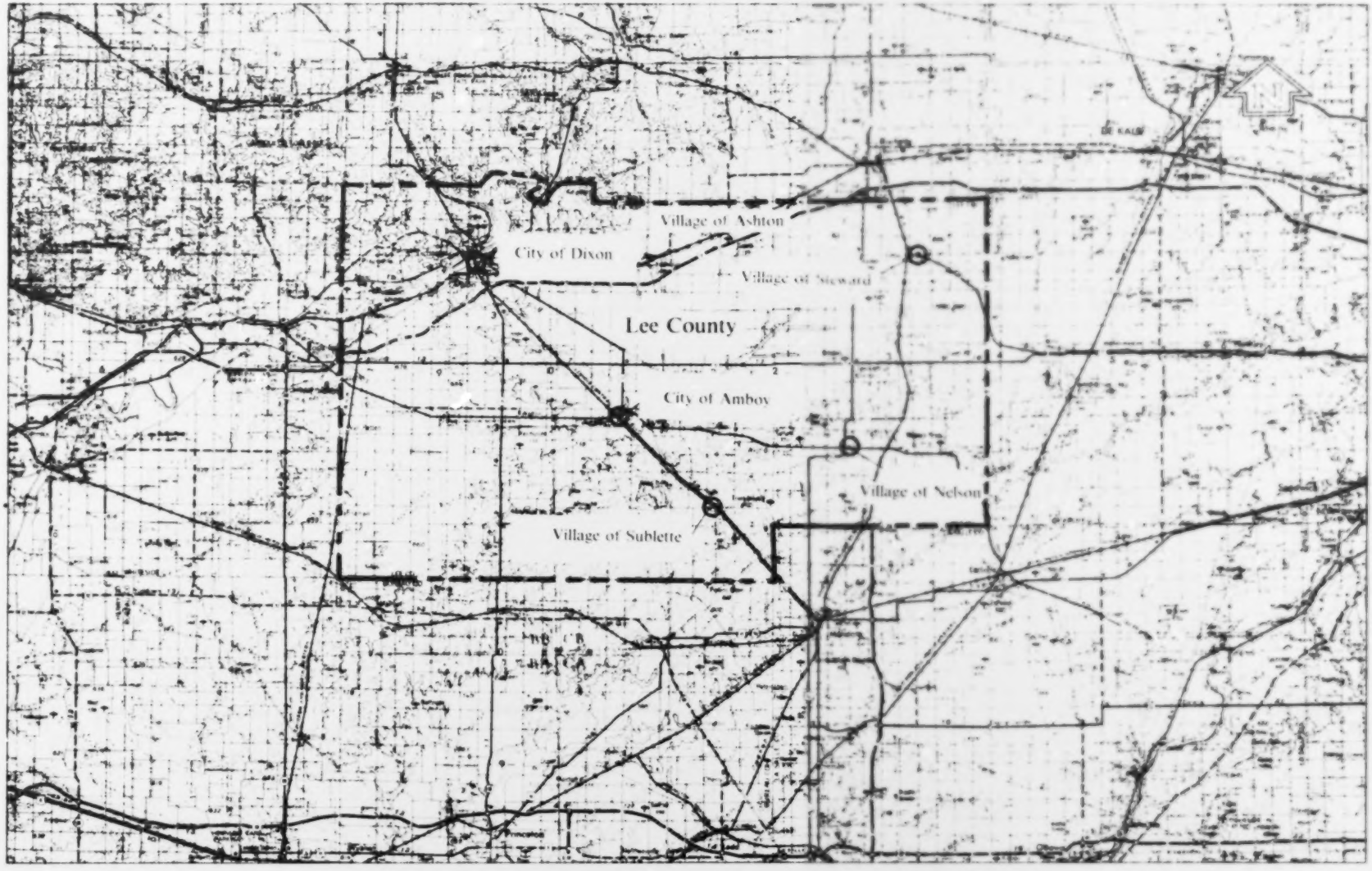

FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

APPROXIMATE SCALE

8 0 8 16 24 MILES

VICINITY MAP

BEST COPY AVAILABLE

Past flooding problems from the Rock River throughout Lee County have occurred primarily between January and May as a result of a combination of ice cover and snowmelt. Flood stages can rise rapidly and remain high for considerable lengths of time. Discharges of the 10 highest floods recorded at the Como gaging station are shown below (Reference 4).

Year	Discharge (cfs[1])	Recurrence Interval (Years)
1973	59,700	74
1937	51,000	29
1938	46,600	18
1946	46,400	18
1974	43,100	12
1948	41,400	10
1916	39,500	8
1943	39,400	8
1925	39,000	7
1979	38,400	7

[1]cubic feet per second

Stream gaging records have also been maintained on the Green River at Amboy, Illinois, by the USGS. Records are available from 1940 until 1981.

Records indicate past flooding problems on the Green River have occurred primarily between March and June as a result of a combination of spring snowmelt and rainfall. Discharges of the 10 highest floods recorded at the Amboy gaging station are shown below (Reference 5).

Year	Discharge (cfs)	Recurrence Interval (Years)
1981	7,600	50
1955	6,120	14
1979	5,750	11
1974	5,010	7
1978	4,740	6
1966	4,600	5
1973	4,460	5
1972	4,260	4
1960	4,240	4
1970	4,130	4

No gaging records are available for Plum and Fargo Creeks in the City of Dixon, and no historical flood information is available for Plum Creek. Limited flood information for Fargo Creek pertains to a flooding occurrence in 1973, when overtopping of street crossings on Fargo Creek caused overland flooding up to 2 feet in depth.

According to citizens living near Nelson Creek, the greatest flood in the village occurred in May 1974. Several homes along the creek were affected, with floodwaters extending out to near Bassett Street on the north side of the creek and well into the farmland on the south side of the creek. Several of the homes had their basements completely full of water, with floodwaters extending above the first floor elevations.

The major cause of flooding in the Nelson area is two restrictive 60-inch pipe culverts through a 14-foot high embankment under the Chicago and North Western railroad. During large flooding events, this restrictive culvert backs up the water throughout the Village of Nelson. Compounding the problem is a service road approximately 100 feet upstream of the railroad with two 36-inch pipes with an embankment of only 4.4 feet.

2.4 Flood Protection Measures

Flood protection measures are not known to exist within the study area.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each riverine flooding source studied in detail affecting the community.

The Rock River discharge-frequency relationships were determined in the study area from the data collected from the stream gage at Como (USGS No. 50443500), located about 7.5 miles downstream of the western county boundary. Bulletin No. 17B (Reference 6) was used to determine the log-Pearson Type III distribution. This analysis found the weighted skew to be -0.4, with two low outliers being found (in 1931 and 1934).

The flows obtained from the gage at Como were then adjusted for drainage area at the county boundary (Reference 7).

The Green River discharge-frequency relationships were determined in the study area from the data collected from the stream gage at Amboy (USGS No. 05447000). The Amboy gage has a period of record of 41 years. Bulletin No. 17B (Reference 6) was used to determine the log-Pearson Type III distribution. This analysis found the weighted skew to be -0.70. An expected probability adjustment was not completed for the log-Pearson Type III distribution on the Green River.

An ongoing flood hazard reconnaissance study for the City of Dixon by the Illinois Department of Transportation (Reference 8) used the equations developed by the USGS for the State of Illinois found in "Technique for Estimating Magnitude and Frequency of Floods in Illinois" (Reference 7) to establish the discharge-frequency relationships for Plum Creek and Nelson Creek. These discharge-frequency equations, developed by multiple regression analyses for unregulated rural streams, utilize the independent variables drainage area, slope, rainfall intensity, and an areal factor to compute the peak flood discharge for a selected frequency of recurrence. Drainage area and channel slope were determined using topographic maps at a scale of 1:24000 with a contour interval of 20 feet (Reference 9).

The reconnaissance study also developed the discharge-frequency relationships for Fargo Creek using the Illinois State standard method developed by the USGS. However, discharges computed for West Branch Fargo Creek were modified somewhat to account for attenuation of flood peaks caused by significant overbank storage upstream of a constrictive culvert beneath the Chicago and North Western railroad embankment. Peak discharges at intermediate locations in the watershed were assumed to vary in proportion to the square root of the drainage area. Drainage area and channel slope were determined using topographic maps at a scale of 1:24000 with a contour interval of 20 feet.

Due to extensive storage capabilities upstream of the restrictive culvert under the Chicago and North Western railroad, a stage-discharge-storage relationship was computed by the use of the U.S. Department of Agriculture, Soil Conservation Service (SCS) TR-20 computer model (References 10 and 11). Flood routings were accomplished for each storm event using the SCR TR-20 computer model. Results of those routings established flood elevations for each event in the area upstream from the restrictive culverts along with peak flow reductions downstream.

Peak discharge-drainage area relationships for the 10-, 50-, 100-, and 500-year floods of each flooding source studied in detail in the community are shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
ROCK RIVER					
at Como Gage	8,755	42,000	55,000	60,800	72,200
at western county boundary	8,659	41,700	55,000	60,300	71,600
GREEN RIVER					
at Amboy Gage	201	5,530	7,630	8,390	9,930
NELSON CREEK					
at mouth	4.18	322	390	407	450
at Chicago and North Western railroad	4.01	505	765	875	1,125
PLUM CREEK					
at mouth	5.56	1,265	1,965	2,265	2,980
FARGO CREEK					
at mouth	3.04	945	1,475	1,705	2,255
at Highland Avenue	1.50	590	925	1,075	1,420
at Eighth Street	1.21	430	830	970	1,275
WEST BRANCH FARGO CREEK					
at Highland Avenue	1.50	480	715	750	810
at Eighth Street	1.38	460	685	720	780
STEWARD CREEK					
at Soo Line Railway	23.00	2,047	3,111	3,567	4,627
WEST TRIBUTARY					
at mouth	4.59	N/A	N/A	1,310	N/A

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Water-surface elevations of the selected recurrence intervals were computed using the COE HEC-2 step-backwater computer program (Reference 12).

Cross-section data for all streams studied in detail were obtained by channel survey soundings. Overbank elevations for the valley cross sections were obtained from computer printouts used for photogrammetric mapping based on April 1984 aerial photography at scales of 1:12000, 1:4800, and 1:2400 with a contour interval of 2 feet (References 13-18).

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles. For stream segments for which a floodway was computed (Section 4.2), selected cross-section locations are also shown on the Flood Insurance Rate Map.

The channel roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and field inspection. The following list gives the range of "n" values used for each stream studied in detail:

Stream	Range of Roughness Factor	
	Channel	Overbank
Rock River	0.025	0.040-0.100
Green River	0.035	0.060-0.080
Nelson Creek	0.035-0.040	0.065-0.080
Plum Creek	0.035-0.075	0.035-0.080
Fargo Creek	0.020-0.060	0.035-0.100
West Branch Fargo Creek	0.020-0.060	0.035-0.100

Flood profiles were drawn showing the computed water-surface elevations for floods of the selected recurrence intervals. In cases where the 50- and 100-year flood elevations are close together, due to limitations of the profile scale, only the 100-year profile has been shown.

The hydraulic analyses for this study are based on the effects of unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the map and described in the exhibit labeled Elevation Reference Marks.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages state and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100- and 500-year floodplain boundaries and 100-year floodway to assist communities in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the 100- and 500-year floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at scales of 1:12000, 1:4800, and 1:2400 with a contour interval of 2 feet (References 13-18).

The 100- and 500-year floodplain boundaries are shown on the Flood Insurance Rate Map. On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A, AE, AH, AO, A99, V, and VE) and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary was delineated using the Flood Hazard Boundary Maps for the Unincorporated Areas of Lee County, the Cities of Amboy and Dixon, and the Villages of Ashton, Nelson, Steward, and Sublette (References 19-25).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces the flood-carrying capacity, increases the flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. In Illinois though, under Revised Statutes, Section 65f, Chapter 19, as amended in 1973 (Reference 26), encroachment in the floodplain is limited to that which will cause only an insignificant increase in flood heights. Thus, at the recommendation of the Illinois Division of Water Resources, a floodway having no more than a 0.1-foot surcharge has been delineated for this study. The floodways in this study are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this study were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections and are shown in Table 2, Floodway Data. The computed floodways are shown on the Flood Insurance Rate Map. In cases where the floodway and the 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown. Portions of the floodway for the Rock River lie outside the county boundary.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
ROCK RIVER								
A	77.34	1963	18,375	3.3	641.4	641.4	641.5	0.1
B	77.69	1740	16,831	3.6	641.8	641.8	641.9	0.1
C	78.98	2222	22,724	2.7	643.2	643.2	643.3	0.1
D	79.52	1880	19,008	3.2	643.5	643.5	643.6	0.1
E	80.54	1355	14,420	4.2	644.3	644.3	644.4	0.1
F	81.08	1445	16,497	3.7	644.7	644.7	644.8	0.1
G	81.60	1690	18,093	3.3	645.2	645.2	645.3	0.1
H	82.27	1132	13,477	4.5	645.7	645.7	645.8	0.1
I	83.05	822	12,730	4.7	646.3	646.3	646.4	0.1
J	83.84	974	15,225	4.0	647.1	647.1	647.2	0.1
K	84.13	1045	13,041	4.6	647.3	647.3	647.4	0.1
L	85.56	730	11,291	5.3	648.7	648.7	648.8	0.1
M	86.30	735	13,961	4.3	649.6	649.6	649.7	0.1
N	86.56	765	13,192	4.6	649.8	649.8	649.9	0.1
O	87.32	1015	15,014	4.0	655.1	655.1	655.1	0.0
P	87.52	1697	19,345	3.1	655.3	655.3	655.3	0.0
Q	88.31	964	14,755	4.1	655.7	655.7	655.7	0.0
R	88.78	1255	16,245	3.7	656.1	656.1	656.1	0.0
S	89.27	800	12,839	4.7	656.4	656.4	656.4	0.0
T	89.79	1503	18,126	3.3	656.9	656.9	656.9	0.0
U	90.99	1192	16,244	3.7	657.7	657.7	657.7	0.0
V	91.61	902	14,051	4.3	658.2	658.2	658.2	0.0
W	92.84	1075[2]	16,523	3.6	659.1	659.1	659.2	0.1
X	93.60	1102[2]	14,616	4.1	659.5	659.5	659.6	0.1
Y	95.04	2158[2]	24,528	2.5	660.5	660.5	660.6	0.1
Z	96.34	2764[2]	25,649	2.4	661.1	661.1	661.2	0.1

[1]MILES ABOVE MOUTH
[2]THIS WIDTH EXTENDS BEYOND COUNTY BOUNDARY

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

FLOODWAY DATA

ROCK RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
ROCK RIVER								
AA	96.75	1703[3]	18,395	3.3	661.2	661.2	661.3	0.1
AB	97.26	2326[3]	25,881	2.3	661.6	661.6	661.7	0.1
AC	98.11	1616[3]	17,323	3.5	662.2	662.2	662.3	0.1
AD	98.87	2931[3]	31,111	1.9	663.1	663.1	663.2	0.1
AE	99.62	1539[3]	22,217	2.7	663.4	663.4	663.5	0.1
GREEN RIVER								
A	24,000[2]	625	1455	5.8	723.5	723.5	723.5	0.0
B	25,875[2]	255	1963	4.3	727.7	727.7	727.8	0.1
C	27,765[2]	998	7077	1.2	730.1	730.1	730.2	0.1
D	29,710[2]	1091	6446	1.3	730.4	730.4	730.5	0.1
E	33,850[2]	1793	5924	1.4	731.4	731.4	731.5	0.1
F	36,980[2]	2058	5821	1.4	732.6	732.6	732.7	0.1
G	40,180[2]	1564	10,175	0.8	738.3	738.3	738.3	0.0
H	41,845[2]	1345	5867	1.4	738.5	738.5	738.5	0.0
I	43,910[2]	1322	4090	2.1	739.4	739.4	739.5	0.1
J	45,480[2]	598	2129	3.9	742.2	742.2	742.2	0.0

[1]MILES ABOVE MOUTH
[2]FEET ABOVE STATE ROUTE 26
[3]THIS WIDTH EXTENDS BEYOND COUNTY BOUNDARY

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

FLOODWAY DATA

ROCK RIVER—GREEN RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
NELSON CREEK								
A	3150	134	629	0.6	644.3	644.3	644.3	0.0
B	4000	129	439	0.9	644.3	644.3	644.3	0.0
PLUM CREEK								
A	390	101	535	4.2	649.5	648.1[2]	648.1	0.0
B	1025	150	897	2.5	651.5	651.5	651.5	0.0

[1]FEET ABOVE MOUTH
[2]ELEVATIONS COMPUTED WITHOUT CONSIDERATION OF BACKWATER EFFECT FROM ROCK RIVER

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

FLOODWAY DATA

NELSON CREEK—PLUM CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
FARGO CREEK								
A	220	200	118	4.4	650.3	650.2[2]	650.3	0.1
B	580	248	302	1.7	656.3	656.3	656.3	0.0
C	1505	85	345	3.1	659.2	659.2	659.3	0.1
D	2010	119	388	2.8	664.3	664.3	664.4	0.1
E	2540	80	463	2.3	674.4	674.4	674.4	0.0
F	3370	125	378	2.8	679.9	679.9	679.9	0.0
G	4070	100	375	2.9	681.6	681.6	681.6	0.0
H	4940	119	402	2.4	692.7	692.7	692.7	0.0
I	5390	115	280	3.5	693.3	693.3	693.3	0.0
J	6365	150	414	2.3	700.7	700.7	700.7	0.0
K	8150	233	263	3.7	712.9	712.9	712.9	0.0
WEST BRANCH FARGO CREEK								
A	240	62	280	2.7	660.0	660.0	660.0	0.0
B	838	33	92	8.1	664.5	664.5	664.5	0.0
C	1190	75	262	2.9	675.2	675.2	675.2	0.0
D	1828	95	567	1.3	683.6	683.6	683.6	0.0
E	2343	104	250	2.9	683.8	683.8	683.8	0.0

[1]FEET ABOVE MOUTH
[2]ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM ROCK RIVER

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

FLOODWAY DATA

FARGO CREEK—WEST BRANCH FARGO CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
WEST TRIBUTARY								
A	2020	236	670	2.0	739.9	739.9	739.9	0.0
B	3430	208	489	2.7	743.6	743.6	743.6	0.0
C	4425	291	1122	1.2	747.7	747.7	747.7	0.0

[1]FEET ABOVE MOUTH

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

FLOODWAY DATA

WEST TRIBUTARY

The area between the floodway and the 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 0.1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.

No floodway determinations were made on Nelson Creek upstream of the Chicago and North Western railroad. Within this area, the 100-year flooding results from temporary ponding of flood waters.

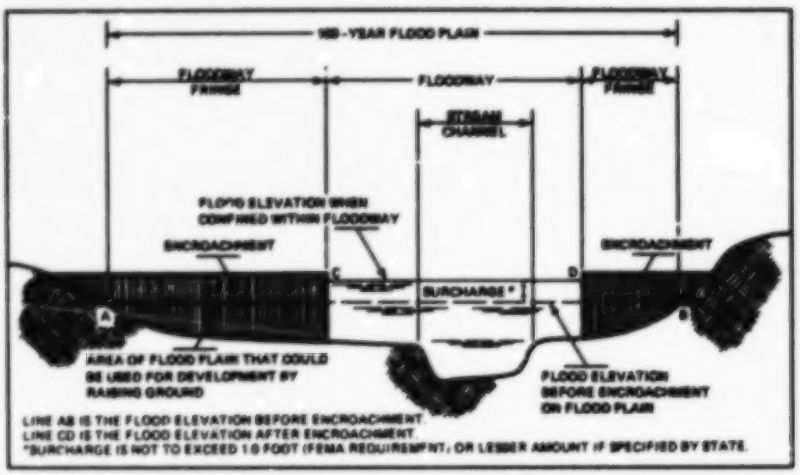
100-YEAR FLOOD PLAIN
FLOODWAY FRINGE
FLOODWAY
FLOODWAY FRINGE
STREAM CHANNEL
FLOOD ELEVATION WHEN CONFINED WITHIN FLOODWAY
ENCROACHMENT
ENCROACHMENT
C
D
SURCHARGE *
A
B
AREA OF FLOOD PLAIN THAT COULD BE USED FOR DEVELOPMENT BY RAISING GROUND
FLOOD ELEVATION BEFORE ENCROACHMENT ON FLOOD PLAIN
LINE AB IS THE FLOOD ELEVATION BEFORE ENCROACHMENT
LINE CD IS THE FLOOD ELEVATION AFTER ENCROACHMENT
*SURCHARGE IS NOT TO EXCEED 1.0 FOOT (FEMA REQUIREMENT, OR LESSER AMOUNT IF SPECIFIED BY STATE

FIGURE 2 - Floodway Schematic

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

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Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 100-year floodplain, areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

The current Flood Insurance Rate Map presents flooding information for the entire geographic area of Lee County. Previously, separate Flood Hazard and Boundary Maps and/or Flood Insurance Rate Maps were prepared for each identified flood-prone incorporated community and the unincorporated areas of the county. Historical data relating to the maps prepared for each community are presented in Table 3, Community Map History.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols the 100- and 500-year floodplains, the floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

7.0 OTHER STUDIES

Flood Insurance Studies have been published for the Unincorporated Areas of Bureau and De Kalb Counties (References 27 and 28), and are in agreement with this study.

A Flood Insurance Study is in progress for the Unincorporated Areas of Ogle County (Reference 29) and is in agreement with this study.

Due to its more detailed analysis, this Flood Insurance Study supersedes the previously printed Flood Hazard Boundary Maps for the Unincorporated Areas of Lee County, the Cities of Amboy and Dixon, and the Villages of Ashton, Nelson, Steward, and Sublette (References 19-25).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, FEMA, 300 South Wacker Drive, Chicago, Illinois 60606.

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
AMBOY, CITY OF	NOVEMBER 23, 1973	APRIL 11, 1975 MARCH 10, 1978 JULY 14, 1978	APRIL 15, 1988	
ASHTON, VILLAGE OF	MAY 3, 1974	JUNE 11, 1976	APRIL 30, 1986	
DIXON, CITY OF	MAY 3, 1974	AUGUST 8, 1975 MARCH 31, 1978	APRIL 15, 1988	
NELSON, VILLAGE OF	JULY 23, 1976		APRIL 15, 1988	
STEWARD, VILLAGE OF	SEPTEMBER 13, 1974	JUNE 18, 1976	SEPTEMBER 1, 1987	
SUBLETTE, VILLAGE OF	JULY 25, 1975		SEPTEMBER 1, 1987	
UNINCORPORATED AREAS	JANUARY 10, 1975	JUNE 2, 1978 AUGUST 25, 1978	APRIL 15, 1988	

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

9.0 REFERENCES AND BIBLIOGRAPHY

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2. U.S. Department of Agriculture, Soil Conservation Service in Cooperation with the Illinois Agricultural Experiment Station, General Soil Map of Lee County, Illinois, August 1970.

3. National Climatic Center, Climatological Data, "Annual Summaries for Illinois," Asheville, North Carolina, 1977.

4. U.S. Department of Interior, Geological Survey, Gage No. 05443500, Rock River at Como, Illinois - Annual Peak Data, process date May 1984.

5. ---------, Geological Survey, Gage No. 05447000, Green River at Amboy, Illinois - Annual Peak Data, process date March 1983.

6. U.S. Department of the Interior, Geological Survey, Interagency Advisory Committee on Water Data, Office of Water Data Coordination, Hydrology Subcommittee, Bulletin No. 17B, Guidelines for Determining Flood Flow Frequency, September 1981, revised March 1982.

7. U.S. Geological Survey, Water Resources Investigations 77-117, Technique for Estimating Magnitude and Frequency of Floods in Illinois, G. W. Curtis, July 1977.

8. Illinois Department of Transportation, Division of Water Resources, Flood Hazard Reconnaissance for Dixon, Illinois, unpublished.

9. U.S. Geological Survey, 7.5 Minute Series Topographic Maps, Scale 1:24000, Contour Interval 20 feet: Dixon, Illinois, 1950.

10. U.S. Department of Agriculture, Soil Conservation Service, National Engineering Handbook, Section 4, "Hydrology," August 1972.

11. ---------, Soil Conservation Service, Engineering Division, Technical Release No. 20, Computer Program for Project Formulation, Hydrology, May 1965.

12. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water-Surface Profiles, Generalized Computer Program, Davis, California, April 1984.

13. Aero-Metric Engineering, Inc., Topographic Map of Rock River Flood Plain in Lee County, Illinois, Scale 1:12000, Contour Interval 2 feet, April 1984.

14. ---------, Topographic Map of Green River Flood Plain Near Amboy, Illinois, Scale 1:4800, Contour Interval 2 feet, April 1984.

15. ---------, Topographic Map of Flood Plain Area in Dixon, Lee County, Illinois, Scale 1:4800, Contour Interval 2 feet, April 1984.

16. Illinois Department of Transportation, Aerial Surveys Division of Highways, Flood Plain Area in Dixon, Lee County, Illinois, Scale 1:2400, Contour Interval 2 feet, April 1979, reduced Scale 1:4800, June 1985, Brice, Petrides/Donohue.

17. Aero-Metric Engineering, Inc., Topographic Map of Flood Plain Area in Dixon, Lee County, Illinois, Scale 1:12000, Contour Interval 2 feet, April 1984, enlarged Scale 1:4800, June 1985, Brice, Petrides/Donohue.

18. ————, Unnamed Creek in Nelson, Topographic Maps of Unnamed Creek in Nelson, Scale 1:12000, Contour Interval 2 feet, April 1984, enlarged Scale 1:4800, June 1985, Brice, Petrides/Donohue.

19. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard and Boundary Map, Lee County, Unincorporated Areas, Illinois, August 1978.

20. ————, Federal Insurance Administration, Flood Hazard and Boundary Map, City of Amboy, Lee County, Illinois, July 1978.

21. ————, Federal Insurance Administration, Flood Hazard and Boundary Map, City of Dixon, Lee County, Illinois, March 1978.

22. ————, Federal Insurance Administration, Flood Hazard and Boundary Map, Village of Ashton, Lee County, Illinois, June 1976.

23. ————, Federal Insurance Administration, Flood Hazard and Boundary Map, Village of Nelson, Lee County, Illinois, July 1976.

24. ————, Federal Insurance Administration, Flood Hazard and Boundary Map, Village of Steward, Lee County, Illinois, June 1976.

25. ————, Federal Insurance Administration, Flood Hazard and Boundary Map, Village of Sublette, Lee County, Illinois, July 1975.

26. Illinois Department of Transportation, Division of Water Resources, Rules and Regulations, Regulation of Construction Within Floodplains Established Pursuant to Section 65f, Chapter 19, Illinois Revised Statutes, Springfield, Illinois, 1973.

27. Federal Emergency Management Agency, Flood Insurance Study, Bureau County, Unincorporated Areas, Illinois, June 1984.

28. ————, Flood Insurance Study, De Kalb County, Unincorporated Areas, Illinois, September 1985.

29. ————, Flood Insurance Study, Ogle County, Unincorporated Areas, Illinois, in progress.

ELEVATION REFERENCE MARKS

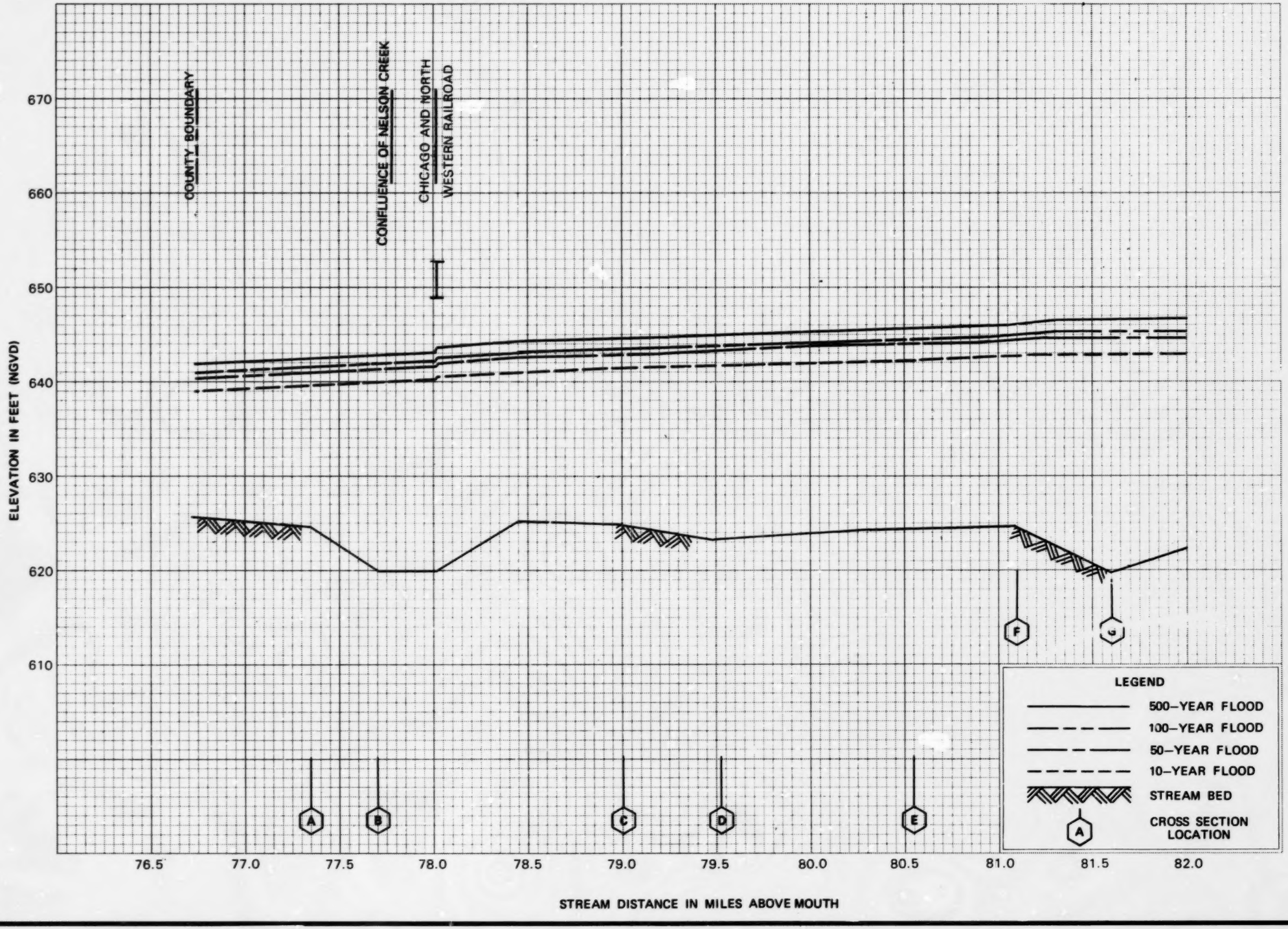
REFERENCE MARK	FLOOD INSURANCE RATE MAP PANEL	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
1	0076	649.17	southeasternmost stud bolt of steel base of lights bridge located along Chicago & North Western railroad about 3,700 feet west of intersection with Nelson Road
2	0076	655.08	standard metal rivet in top southeast corner of northeast foundation for Chicago & North Western railroad signal bridge, located at southwest corner of intersection with Nelson Road
3	0076	653.82	chiseled "U" located on southeast corner of Butler Street bridge over Nelson Creek
4	0115	733.66	chiseled square located on northwest headwall of Rockyford Road bridge over the Green River
5	0115	734.53	chiseled square on top center of box culvert located at northwest corner of intersection of Amboy Road and Rockyford Road
6	0115	740.44	chiseled cross on southernmost flange bolt on fire hydrant located on northeast corner of intersection of Mason Street and South Water Street
7	0115	748.32	chiseled square on north headwall of a bridge for a drainage ditch on Sterling Road, about 0.8 mile east of Mason Street
8	0115	746.86	chiseled square located along west side of Shaw Road about 1,400 feet south of bridge over the Green River
9	0010	658.07	chiseled square located on north end of east headwall of first bridge north of entrance of a farm about 1,000 feet south of intersection of Bend Road and Grand Detour Road
10	0010	756.87	chiseled square located on northeast corner of Bend Road bridge over unnamed tributary to the Rock River

ELEVATION REFERENCE MARKS (continued)

REFERENCE MARK	FLOOD INSURANCE RATE MAP PANEL	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
11	0010	680.41	chiseled square on southeast end of headwall for drainage ditch located along Bend Road, about 3,400 feet west of intersection with Grand Detour Road
12	0010	702.20	chiseled square on the center of northwest headwall located along Grand Detour Road about 2,600 feet southeast of intersection with Bend Road
13	0020	798.68	chiseled cross in west flange bolt of fire hydrant located at northwest corner of Washington Avenue and Apple Street
14	0020	657.29	chiseled square located just east of State Route 2 about 2,500 feet north of intersection with Stony Point Road
15	0015	651.14	chiseled square on northwest corner of headwall of culvert located along north side of State Route 2, about 2,600 feet east of Plock Road
16	0015	672.03	chiseled square located on north side of State Route 2 at east side of road to Klayemn Motors about 1,700 feet west of intersection with Wolverine Road
17	0015	675.29	chiseled square located on southeast side of Rock Island Road about 1,300 feet east of Atkinson Road
18	0018	675.85	chiseled square on northwest headwall of box culvert located along Rock Island Road about 850 feet southwest of intersection with Moyle Road
19	0018	659.64	chiseled square in center of catch basin at southwest corner of intersection of Willett Avenue and State Route 2
20	0018	698.21	chiseled square located along State Route 2 on southwest headwall at entrance to "Stoffers One Stop Farm Store," about 2,600 feet southwest of intersection with Kilgore Road

ELEVATION REFERENCE MARKS (continued)

REFERENCE MARK	FLOOD INSURANCE RATE MAP PANEL	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
21	0018	658.02	chiseled square located on top of Peoria Street bridge wall at end of guard rail over the Rock River
22	0018	654.93	chiseled cross on southernmost flange bolt on hydrant located at southwest corner of intersection of First Street and Highland Avenue
23	0018	658.47	chiseled cross on southernmost flange bolt of hydrant located on southwest corner of Reuters Service Station just southeast of State Route 2
24	0030	690.32	chiseled square on center of headwall of box culvert located at northeast corner of Flag Road and Lost Nation Road



FLOOD PROFILES

ROCK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL AND INCORPORATED AREAS

01P

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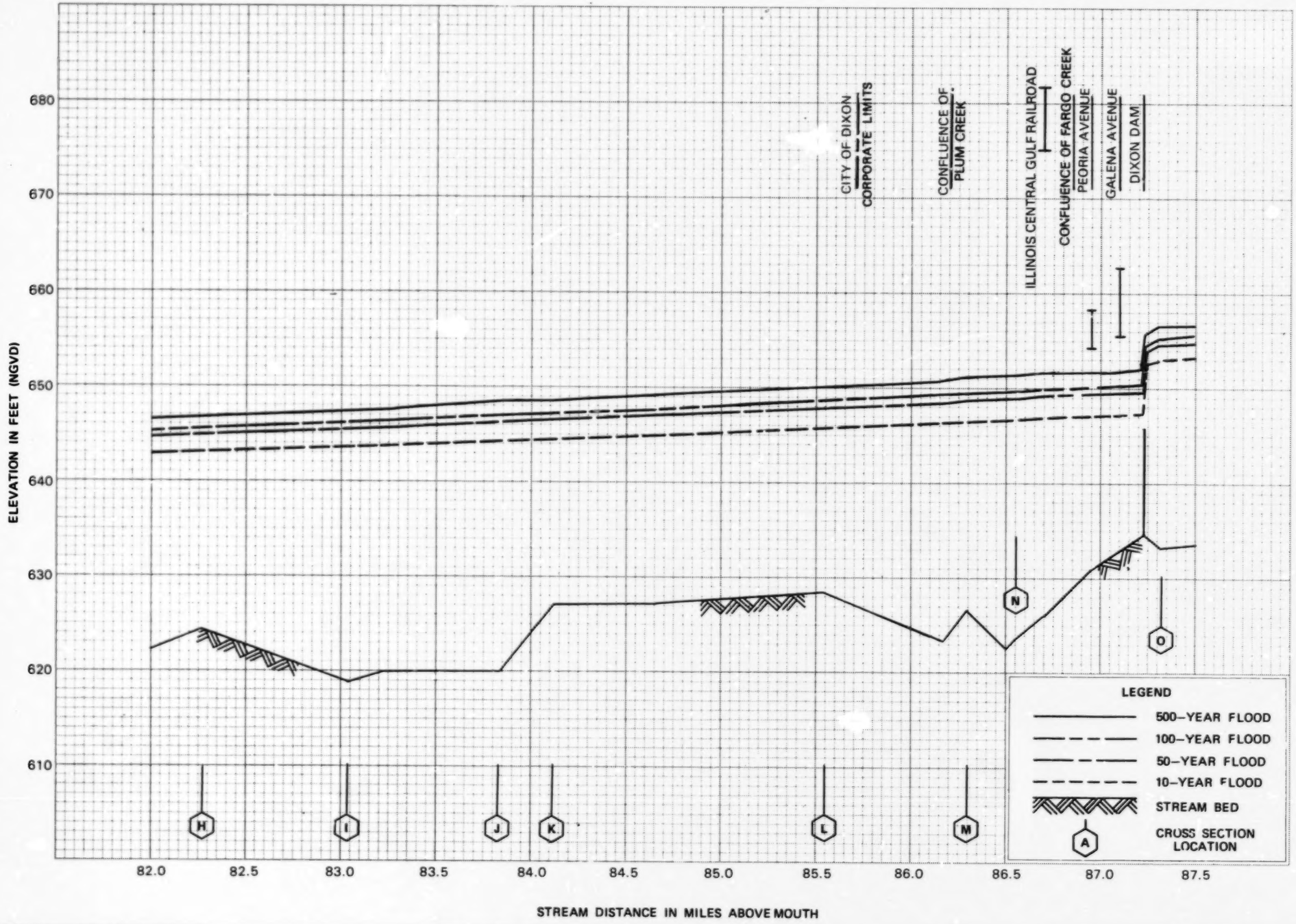

FLOOD PROFILES

ROCK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

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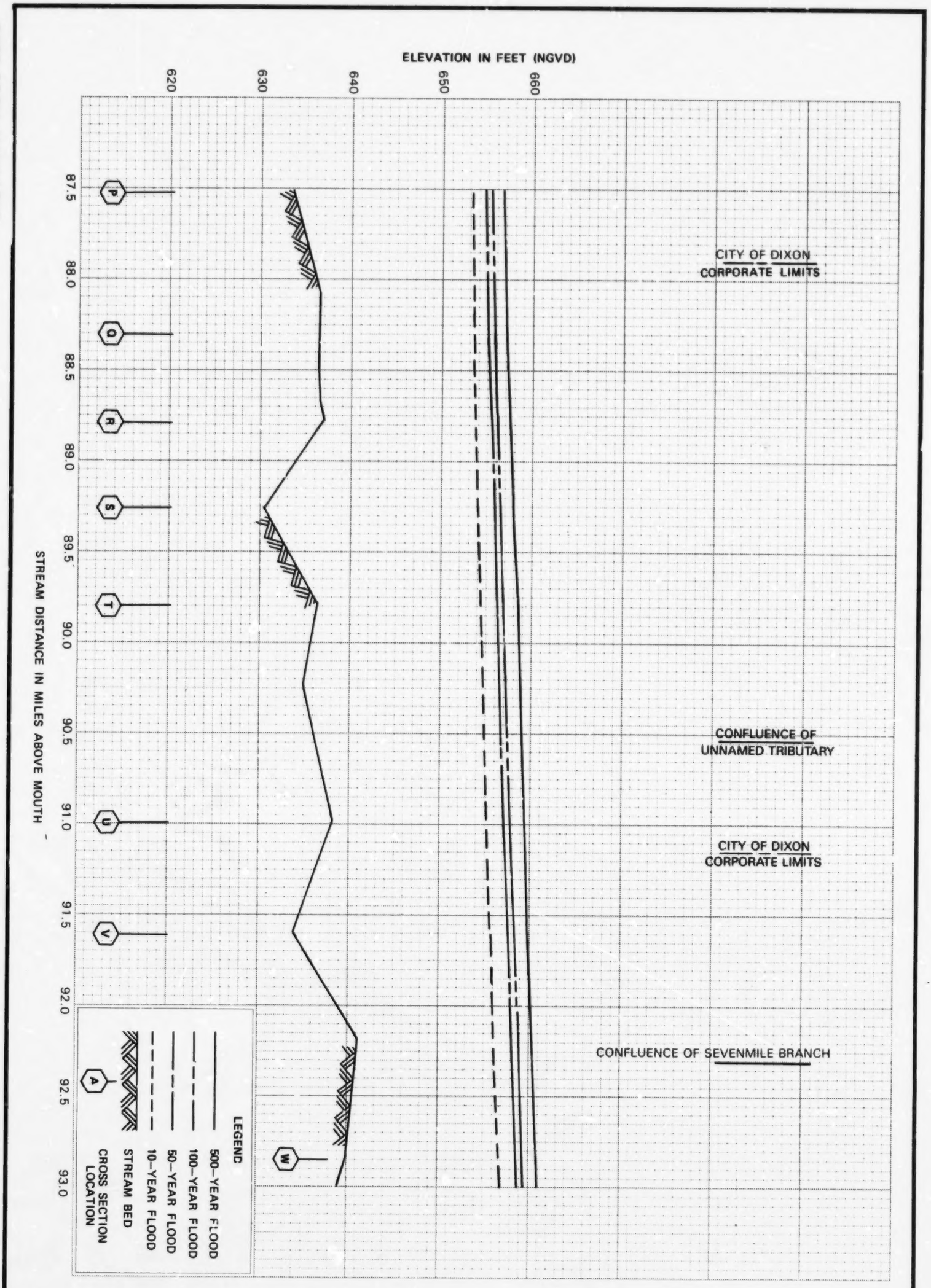
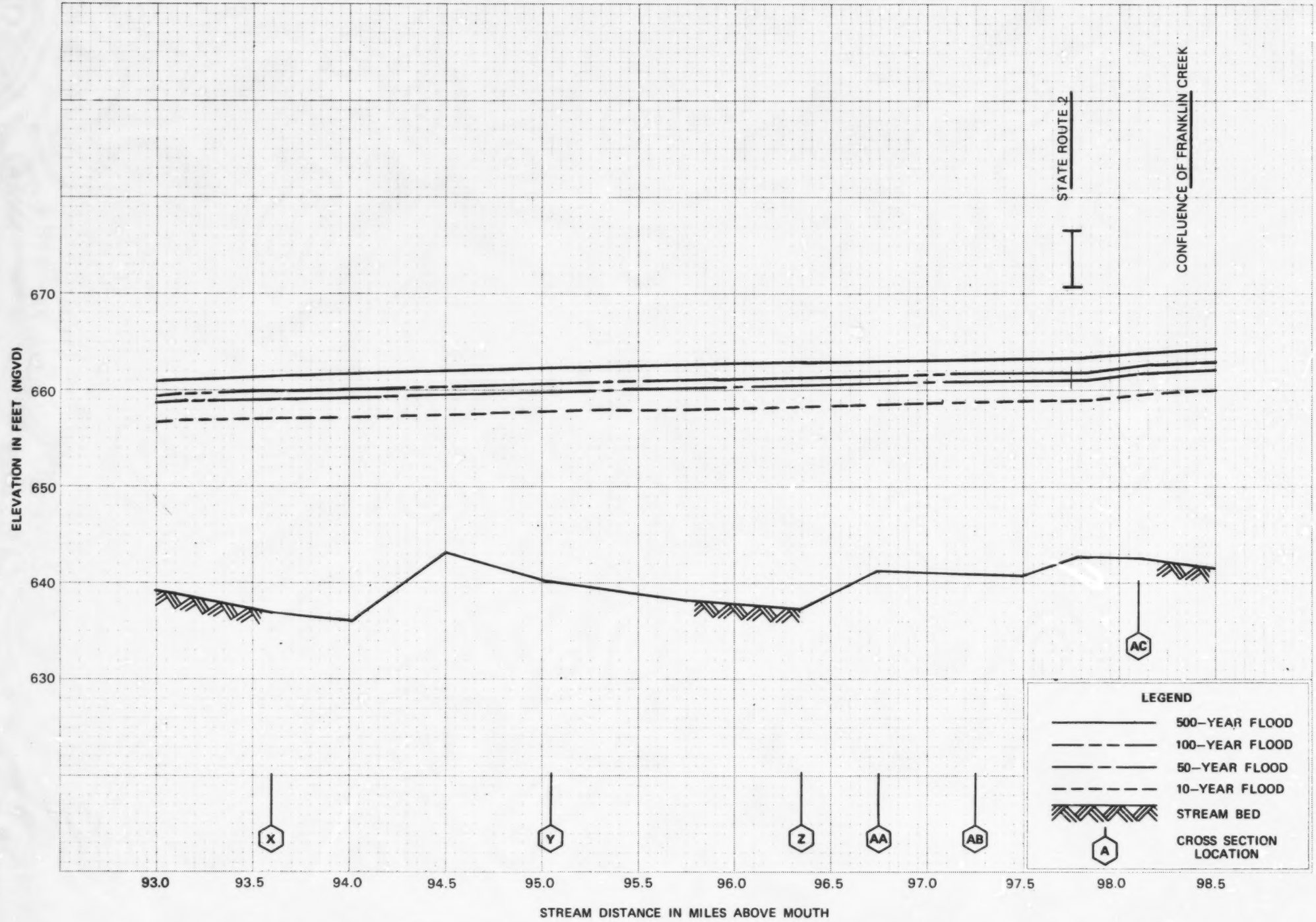


03P	FEDERAL EMERGENCY MANAGEMENT AGENCY LEE COUNTY, IL AND INCORPORATED AREAS	FLOOD PROFILES ROCK RIVER



FLOOD PROFILES

ROCK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

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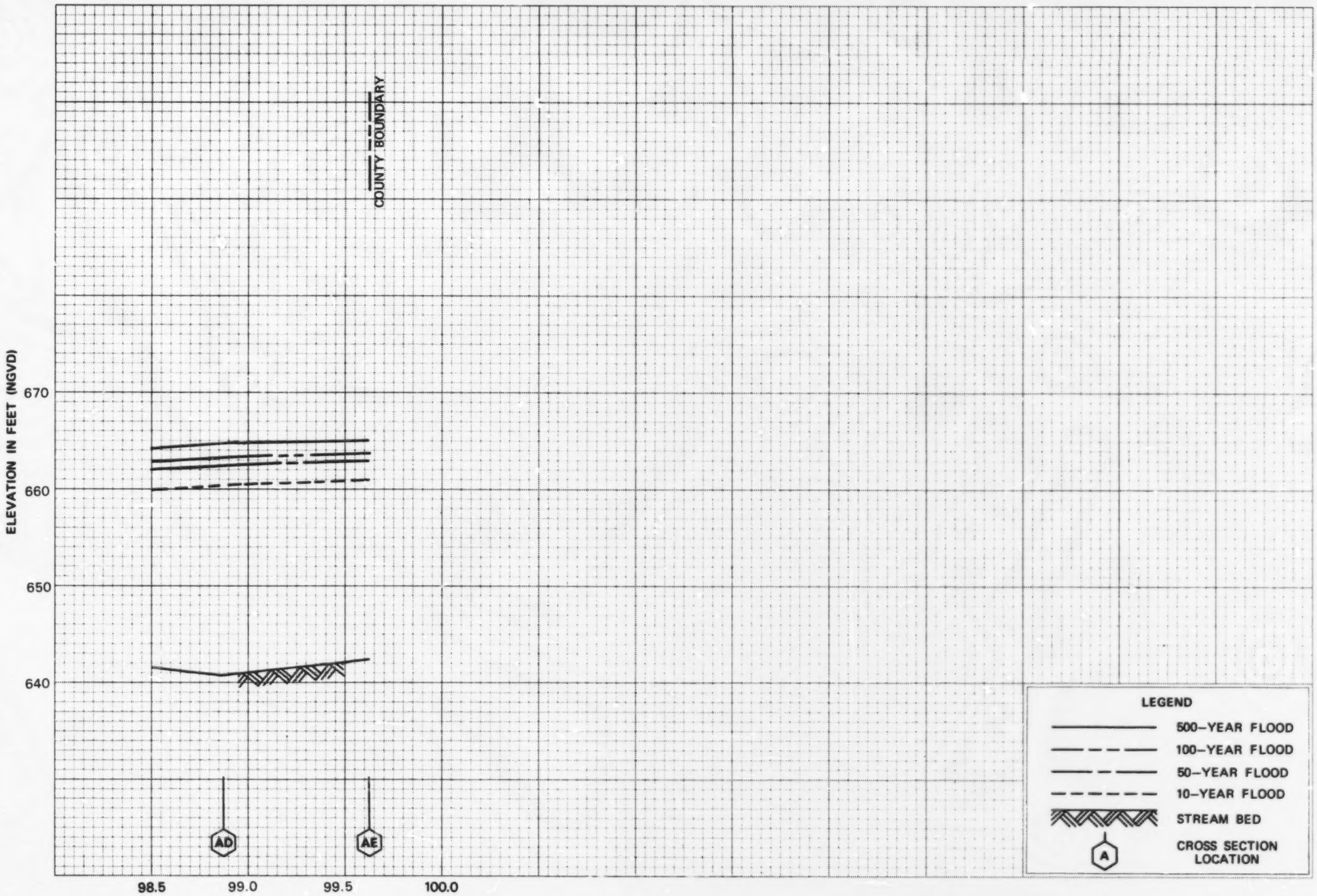

FLOOD PROFILES

ROCK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

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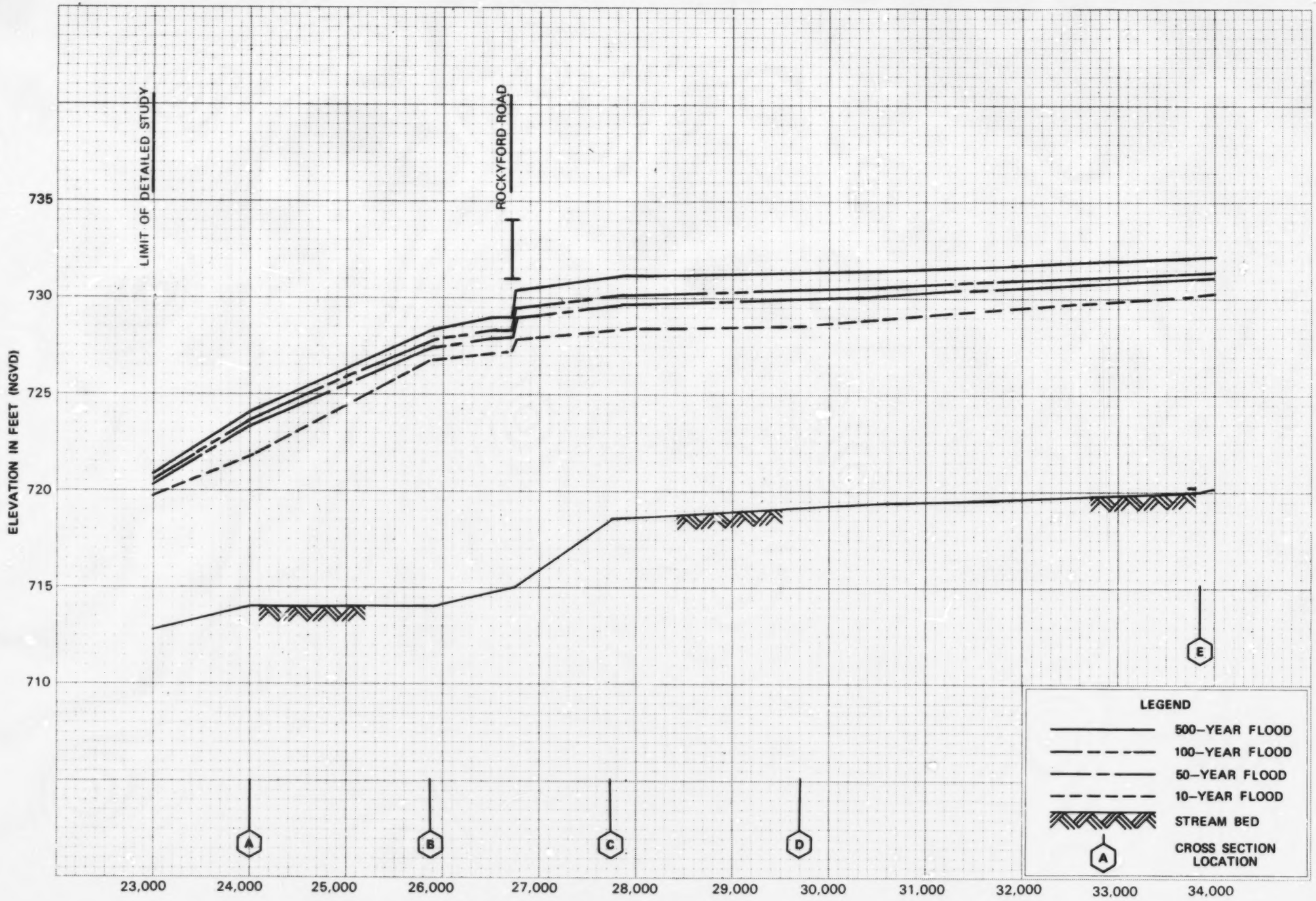

FLOOD PROFILES

GREEN RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

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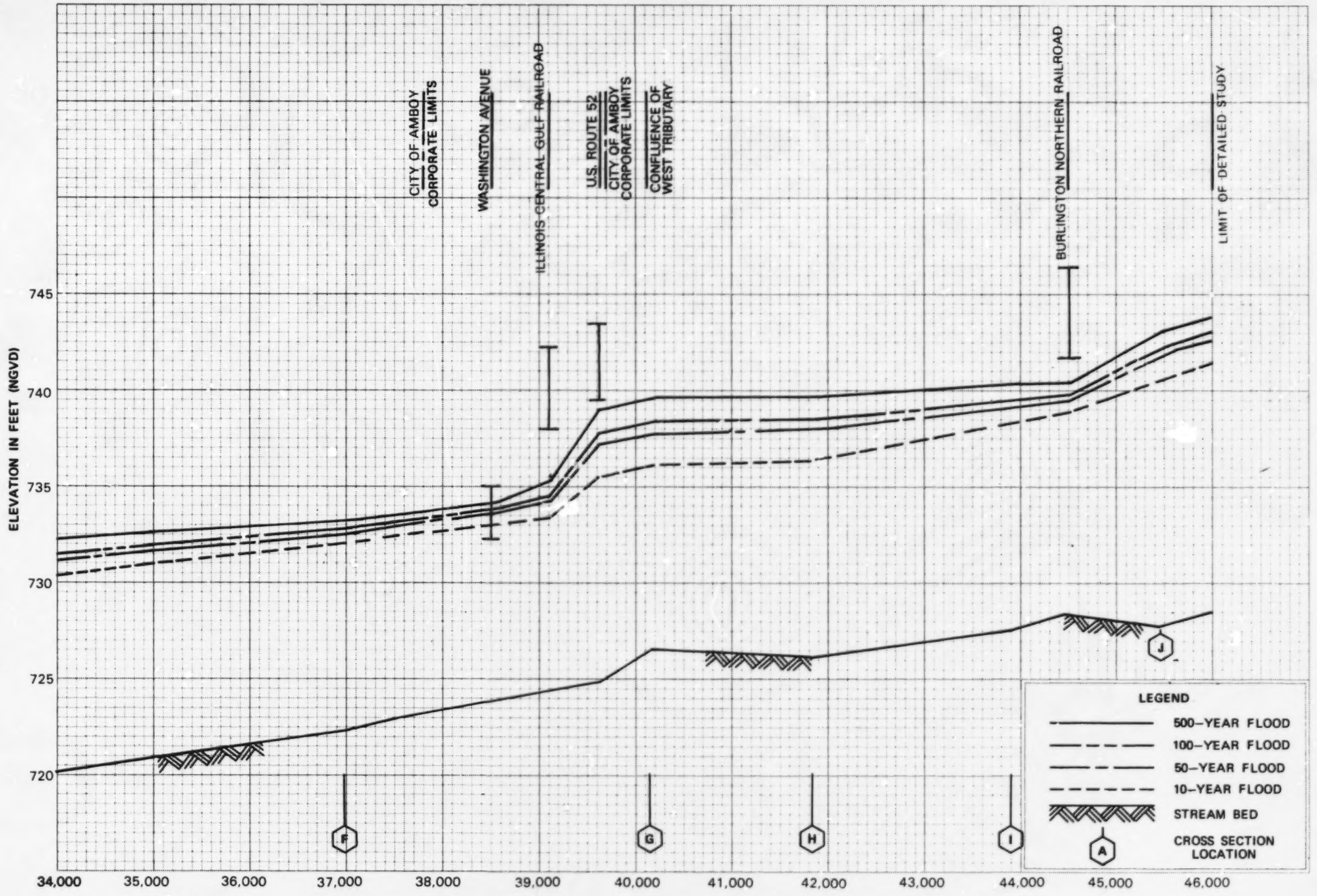

FLOOD PROFILES

GREEN RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL AND INCORPORATED AREAS

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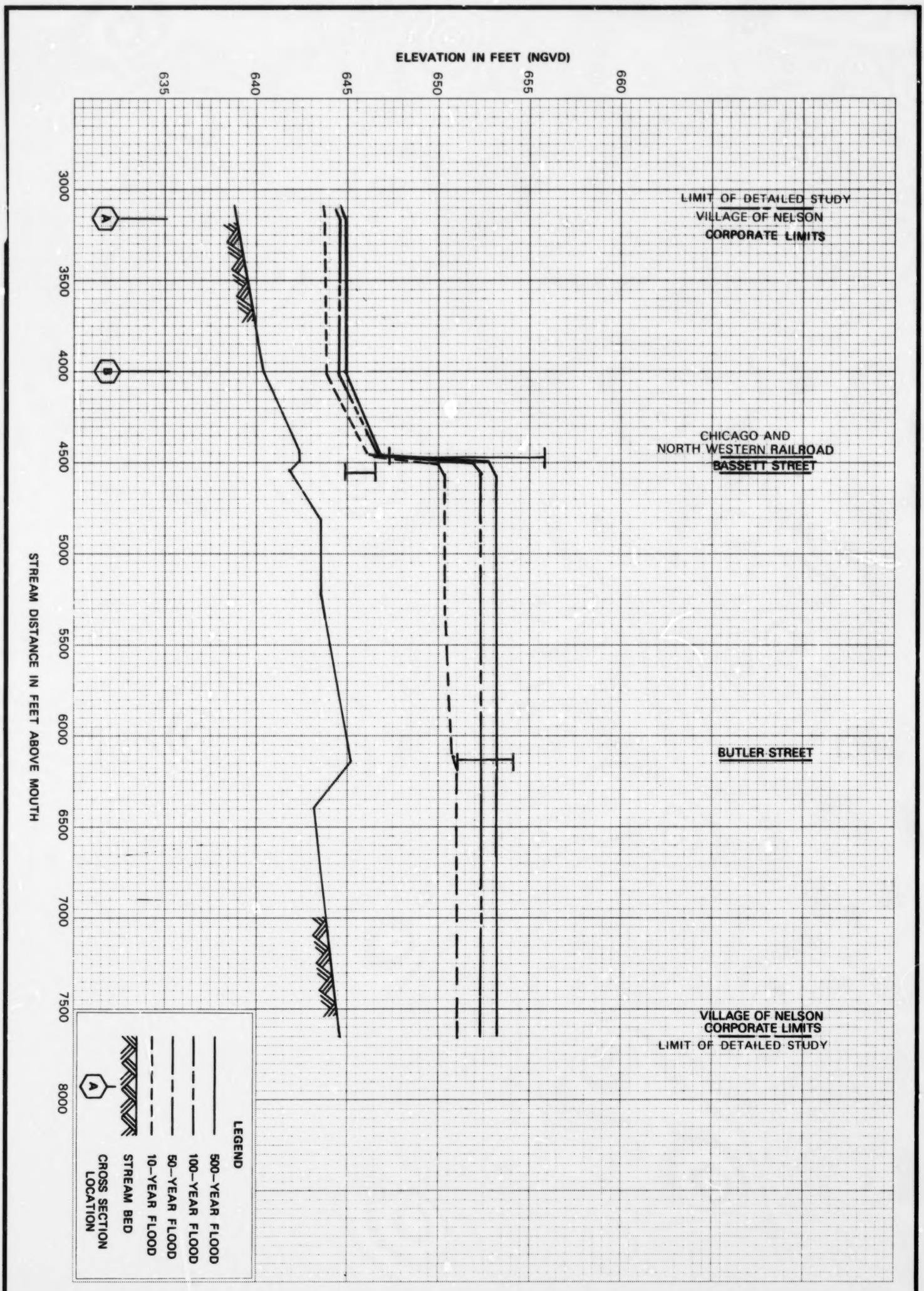

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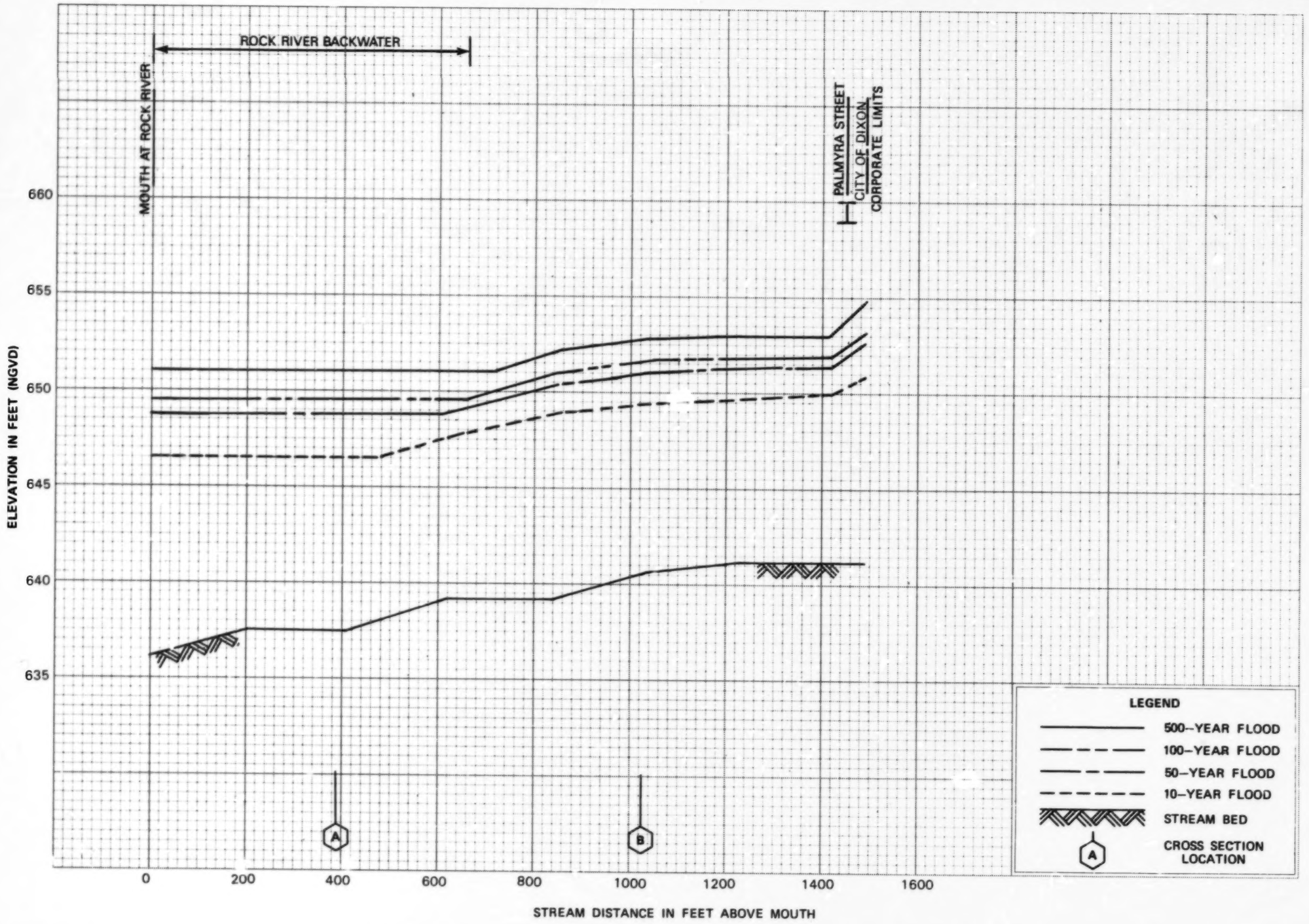

FLOOD PROFILES

PLUM CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

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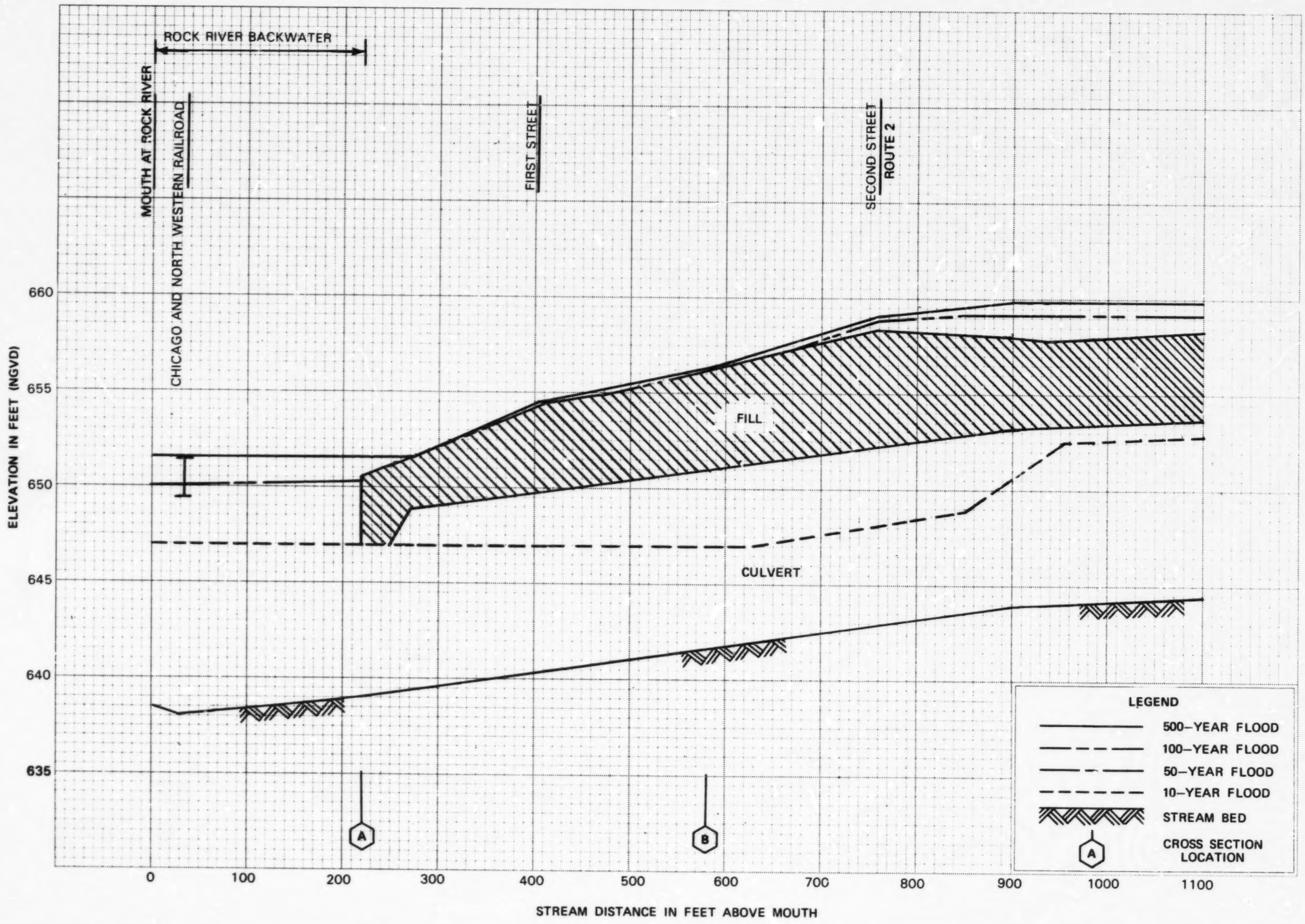

FLOOD PROFILES

FARGO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

10P

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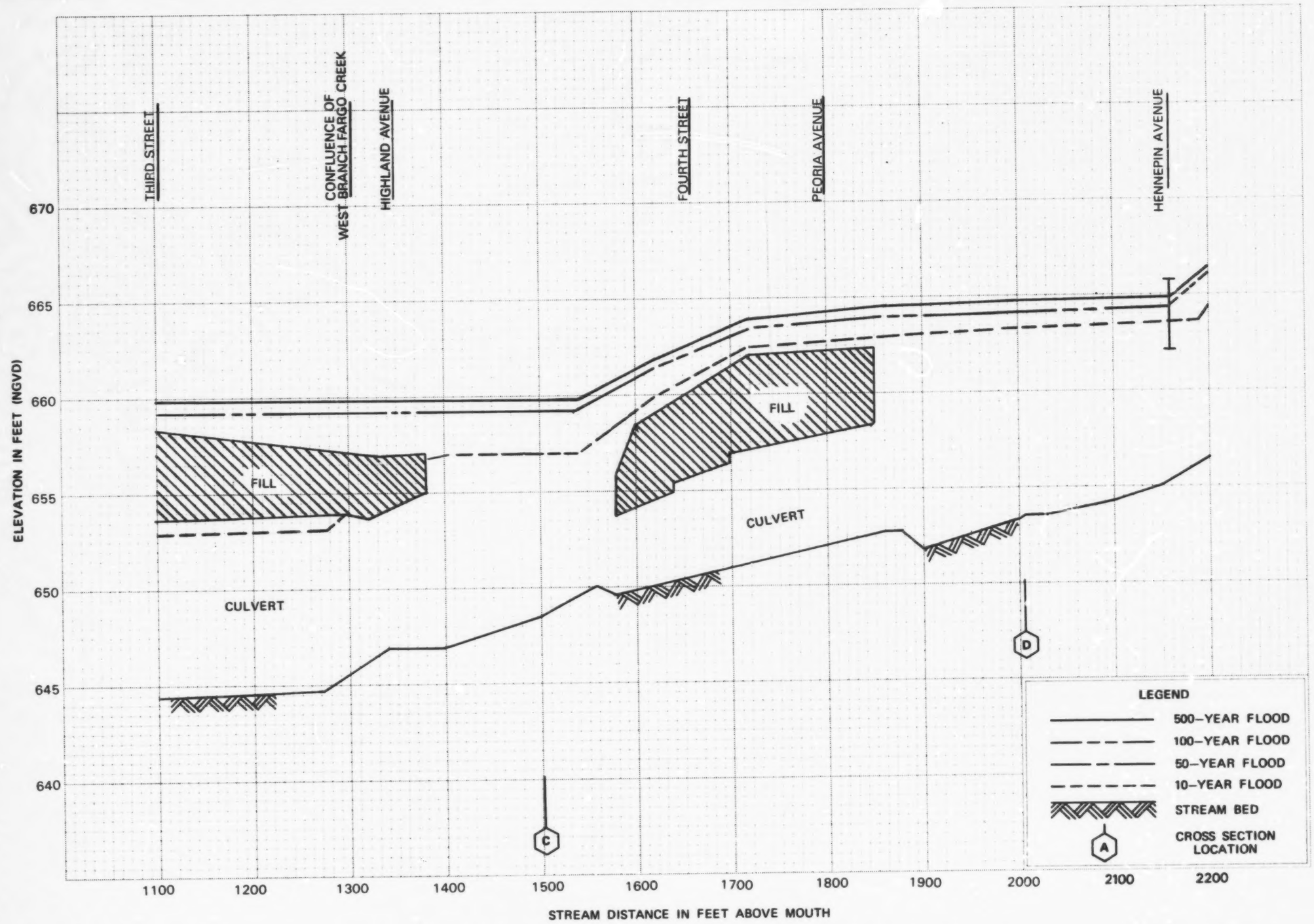

FLOOD PROFILES

FARGO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

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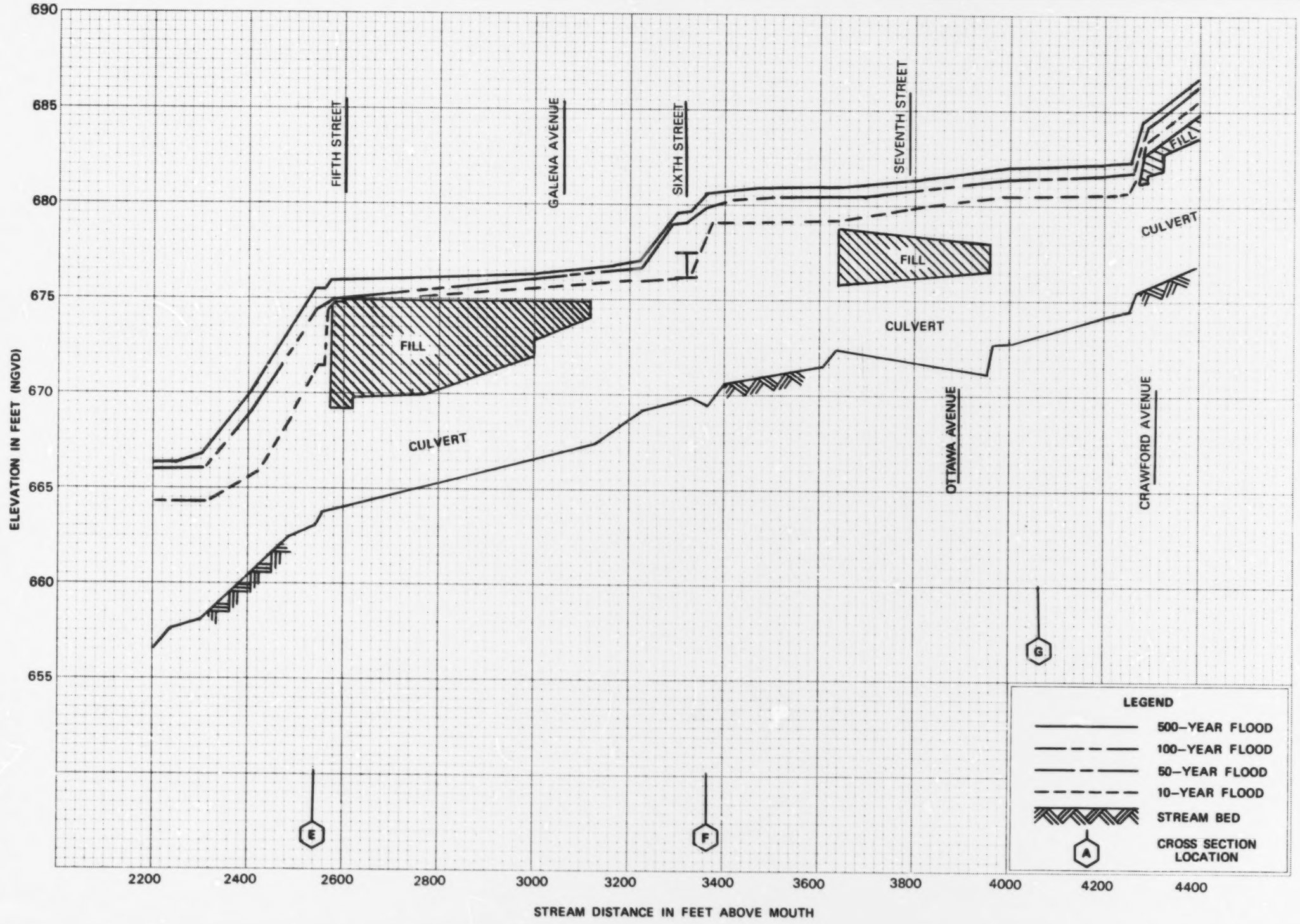

FLOOD PROFILES

FARGO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

12P

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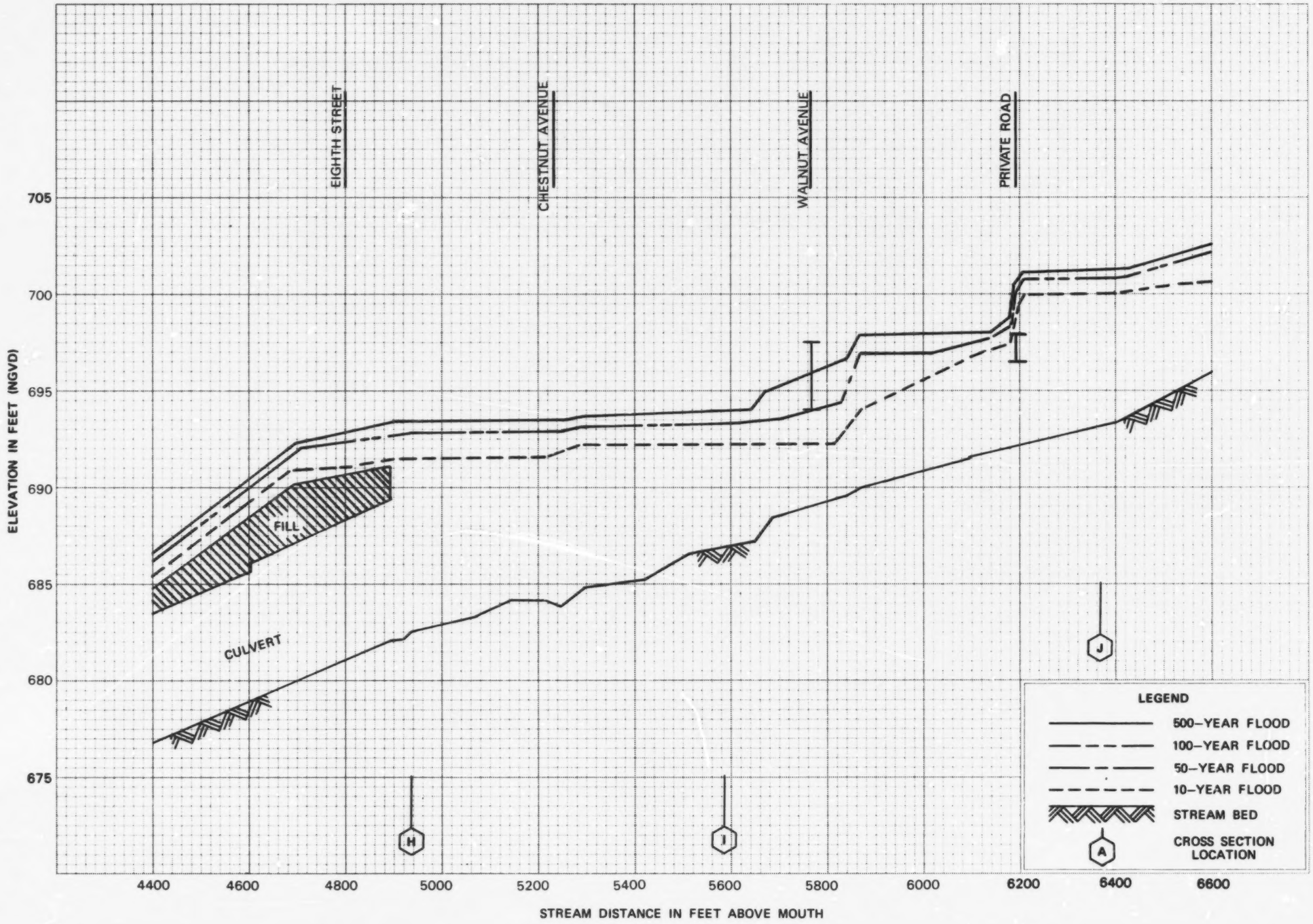

FLOOD PROFILES

FARGO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

13P

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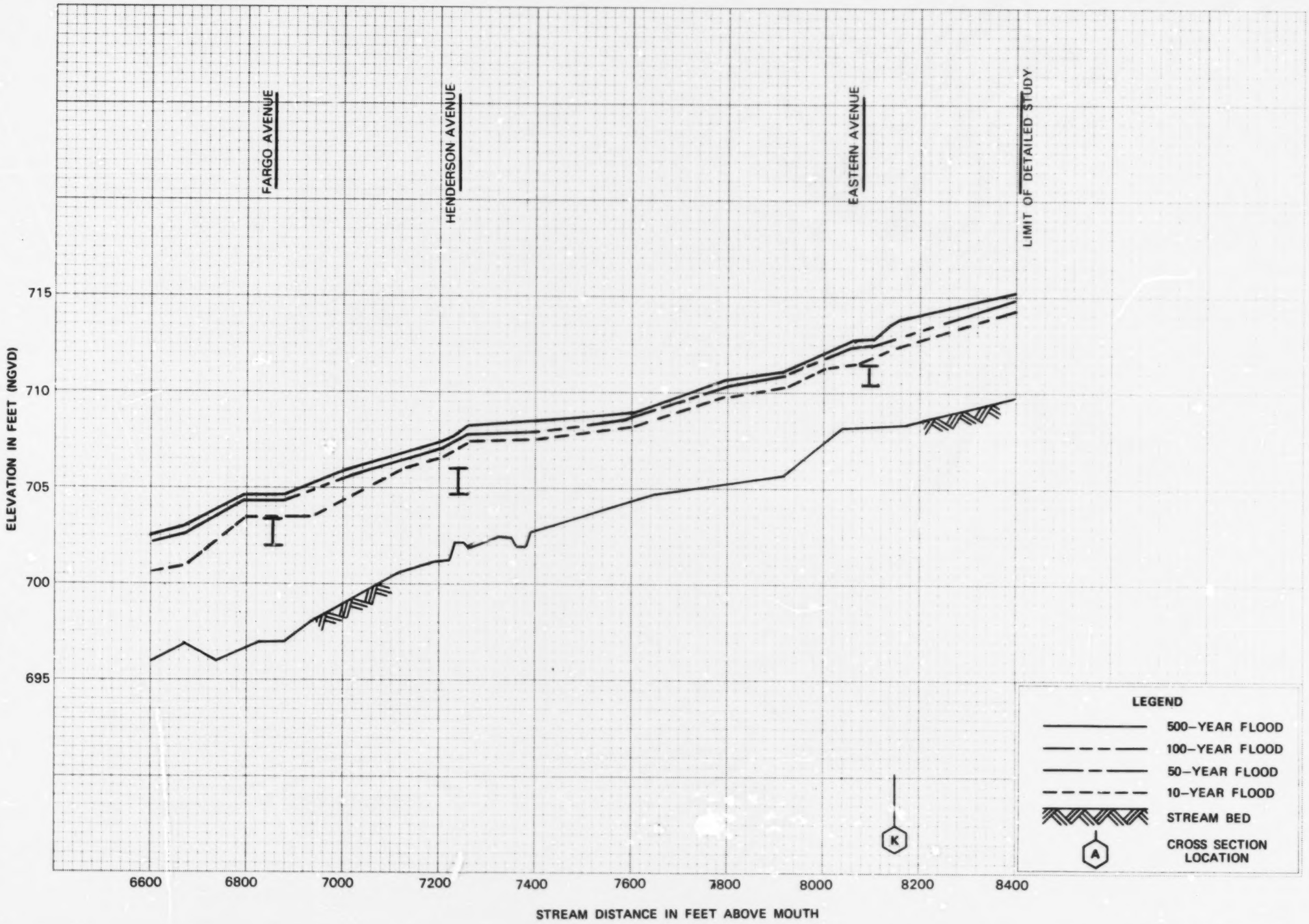

FLOOD PROFILES

FARGO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL AND INCORPORATED AREAS

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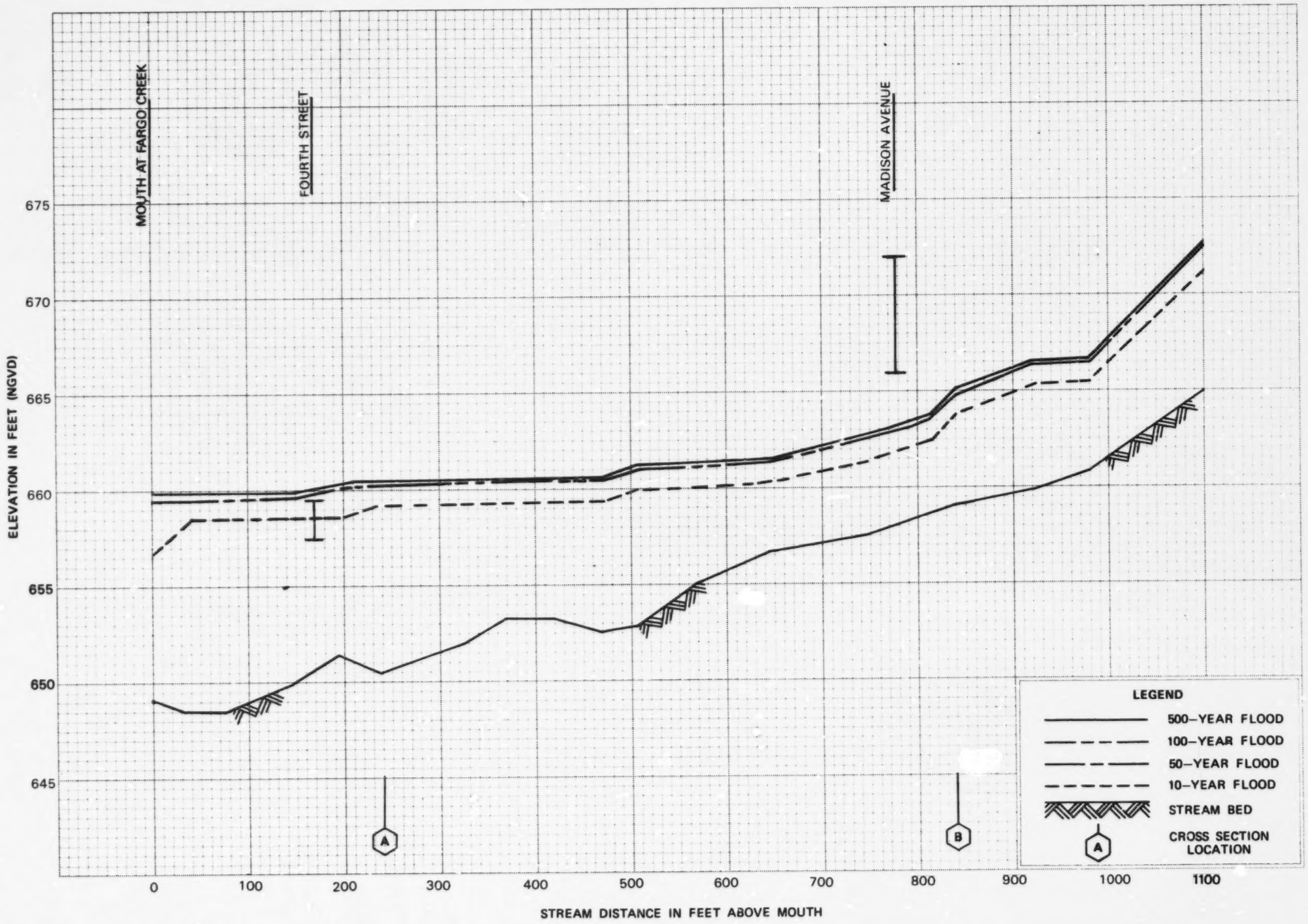

FLOOD PROFILES

WEST BRANCH FARGO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

15P

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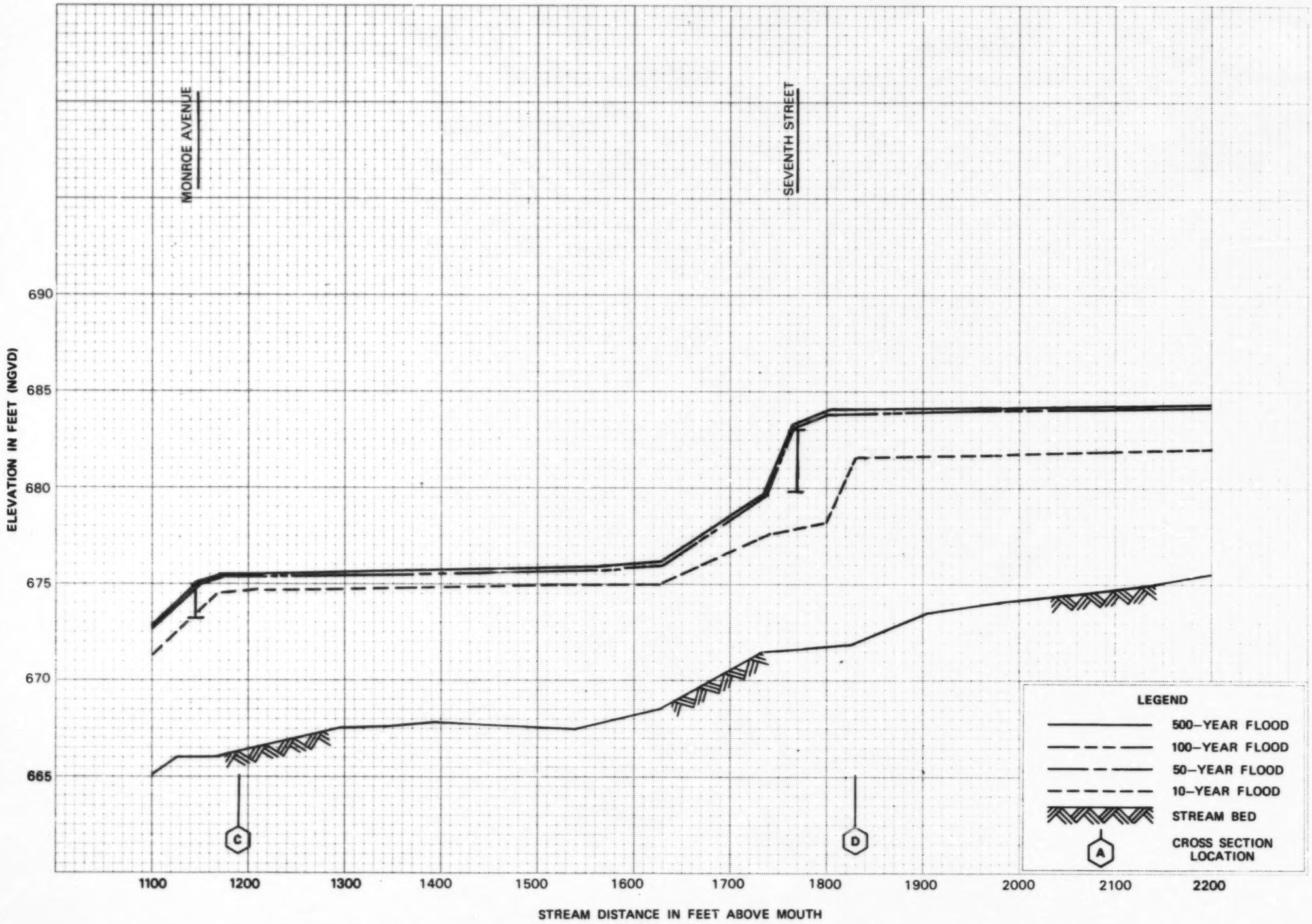

FLOOD PROFILES

WEST BRANCH FANGO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

16P

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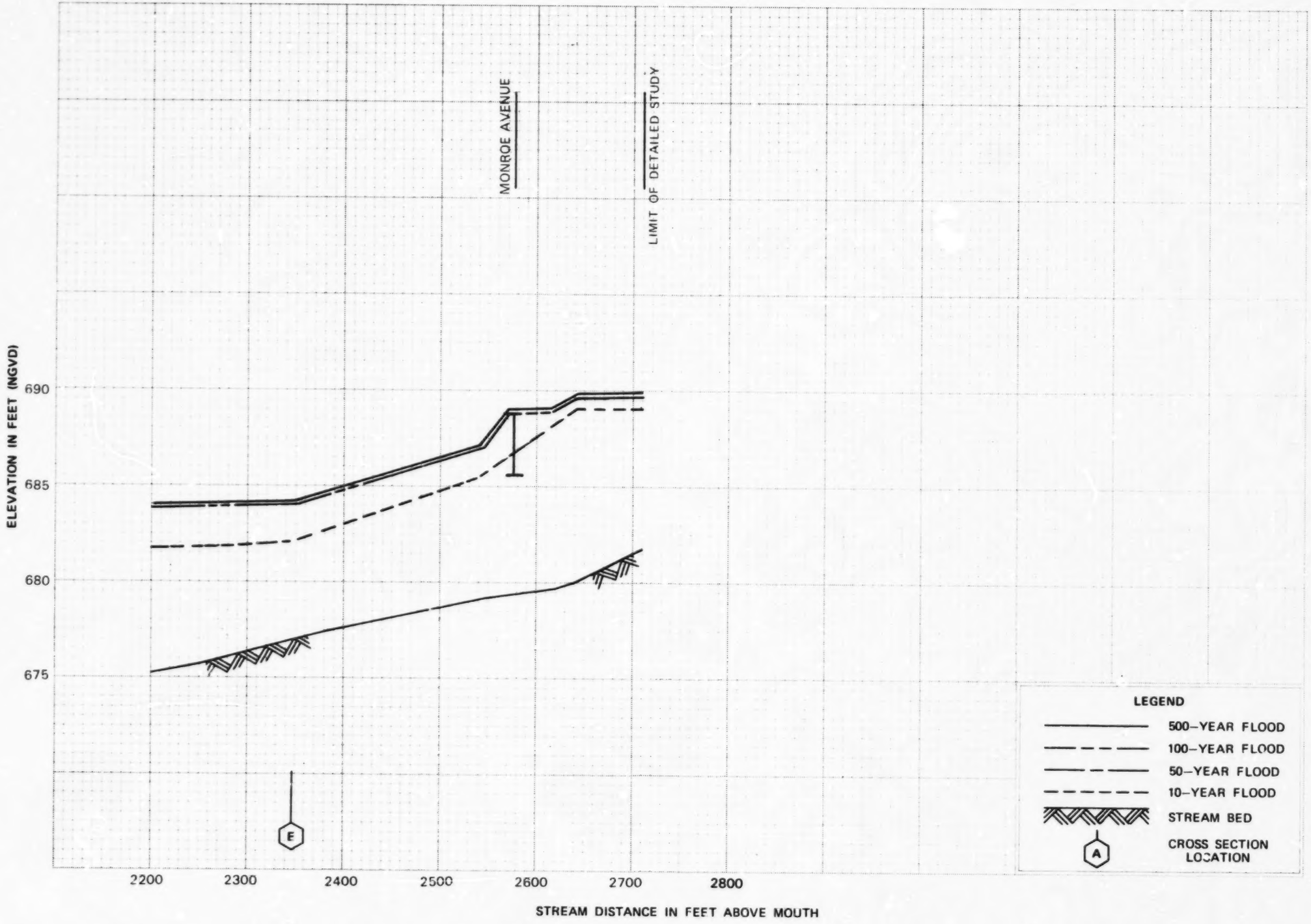

FLOOD PROFILES

WEST BRANCH FARGO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, AL
AND INCORPORATED AREAS

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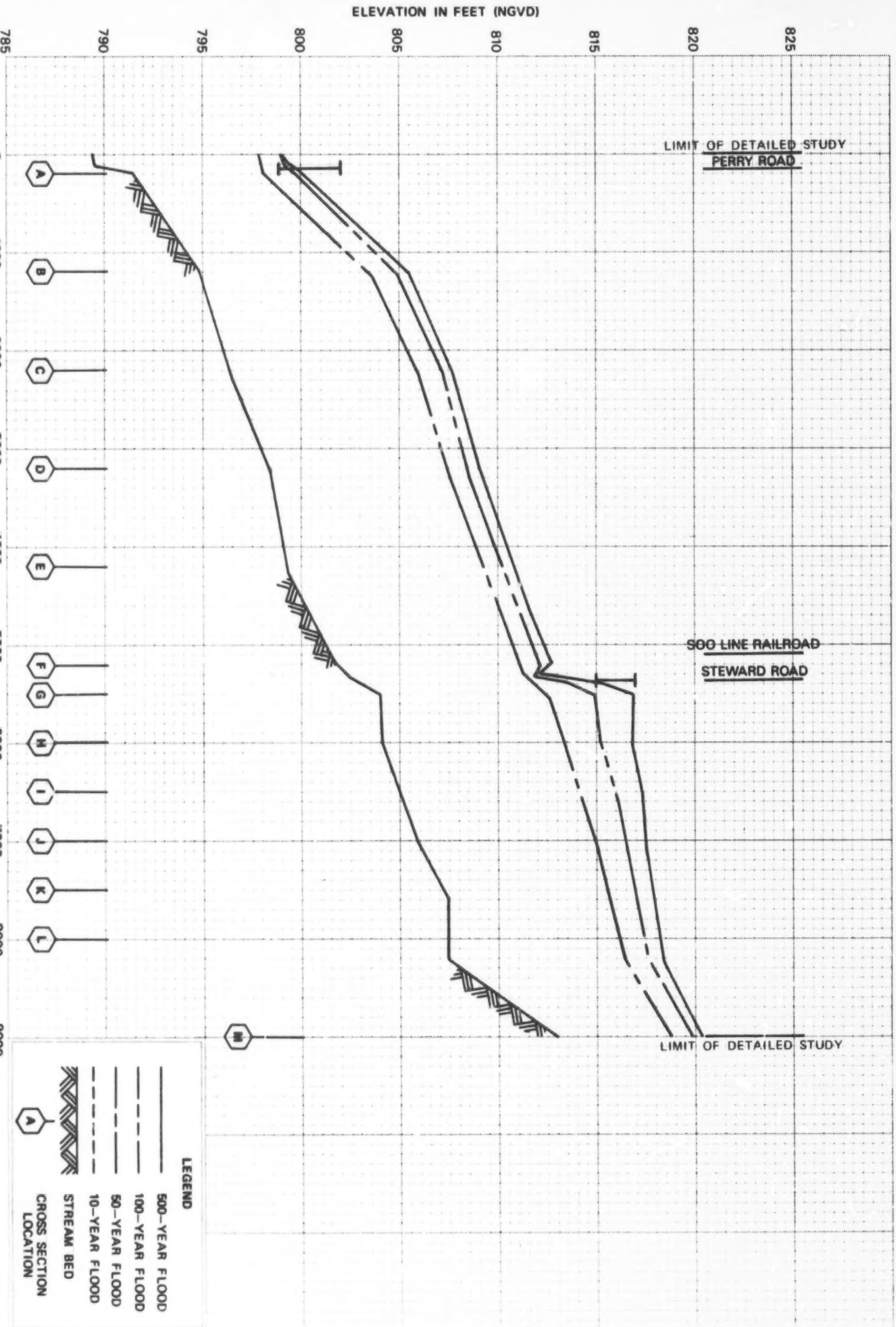
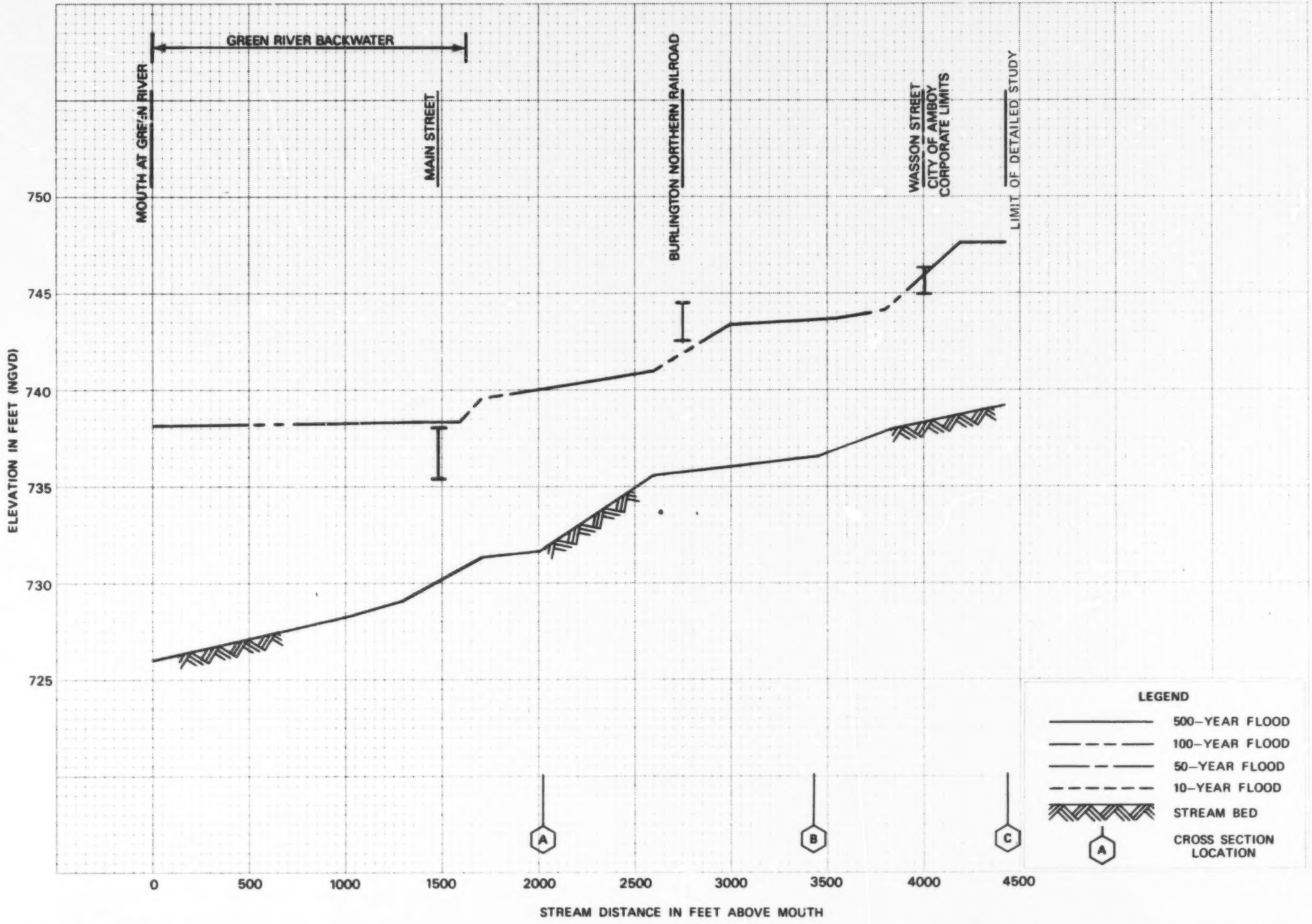


18P	FEDERAL EMERGENCY MANAGEMENT AGENCY LEE COUNTY, IL AND INCORPORATED AREAS	FLOOD PROFILES STEWARD CREEK



FLOOD PROFILES

WEST TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, IL
AND INCORPORATED AREAS

19P

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